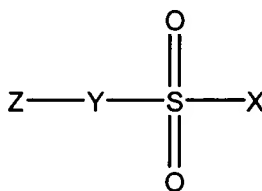


CLAIMS

34. (amended) A coating comprising an effective amount of an anti-fouling compound of structure 1:



1

wherein

X represents -OH;

Y represents O;

a2
Z represents an unsubstituted or substituted moiety selected from the group consisting of branched alkyl, unbranched alkyl of 7 carbons or less, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, and $-(\text{CH}_2)_m-\text{R}_{80}$; wherein when Z is a substituted aryl, any substituent on the aryl ring is selected from the group consisting of halo, azido, alkyl, aralkyl, alkynyl, cycloalkyl, hydroxyl, alkoxy, amino, nitro, sulfhydryl, imino, amido, silyl, alkylthio, sulfonyl, sulfonamido, acyl, formyl, alkoxycarbonyl, heterocyclyl, aryl, heteroaryl, trifluoromethyl, and cyano;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(\text{CH}_2)_m-\text{R}_{80}$;

R_{80} represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive or salt thereof,

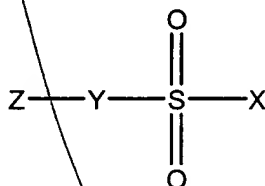
a2
cont wherein the coating releases the compound or a biologically active fragment thereof when in contact with a surface that is amenable to biofouling.

37. (amended) A coating of claim 34, wherein Z represents an unsubstituted or substituted branched alkyl, unbranched alkyl of 7 carbons or less, aryl, or $-(CH_2)_m-R_{80}$.

38. (amended) A coating of claim 34, wherein Z represents an unsubstituted or substituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl.

a3 39. (amended) A coating of claim 34 wherein Z represents methyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

78. (new) A coating comprising an effective amount of an anti-fouling compound of structure 1:



a4 wherein

X represents -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents O, S, Se, or NR;

Z represents a substituted or unsubstituted alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$ group;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(CH_2)_m-R_{80}$;

R_{80} represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive or salt thereof,
wherein the coating releases the compound or a biologically active fragment thereof when in contact with a surface that is amenable to biofouling.

79. (new) A coating of claim 78, wherein X represents F, Cl, or Br.

80. (new) A coating of claim 78, wherein Y represents O.

81. (new) A coating of claim 78, wherein Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

82. (new) A coating of claim 78, wherein Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

a4
cont
83. (new) A coating of claim 78, wherein Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

84. (new) A coating of claim 78 wherein X represents F, Cl, or Br; and Y represents O.

85. (new) A coating of claim 78, wherein X represents Cl; and Y represents O.

86. (new) A coating of claim 78, wherein X represents F, Cl, or Br; and Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

87. (new) A coating of claim 78, wherein X represents Cl; and Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

88. (new) A coating of claim 78, wherein X represents F, Cl, or Br; and Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

89. (new) A coating of claim 78, wherein X represents Cl; and Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

90. (new) A coating of claim 78, wherein X represents F, Cl, or Br; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

a4
cont
91. (new) A coating of claim 78, wherein X represents Cl; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

92. (new) A coating of claim 78, wherein Y represents O; and Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

93. (new) A coating of claim 78, wherein Y represents O; and Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

94. (new) A coating of claim 78, wherein Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

95. (new) A coating of claim 78, wherein X represents F, Cl, or Br; Y represents O; and Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

96. (new) A coating of claim 78, wherein X represents Cl; Y represents O; and Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

97. (new) A coating of claim 78, wherein X represents F, Cl, or Br; Y represents O; and Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

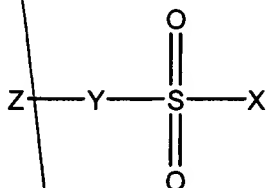
98. (new) A coating of claim 78, wherein X represents Cl; Y represents O; and Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

99. (new) A coating of claim 78, wherein X represents F, Cl, or Br; Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

100. (new) A coating of claim 78, wherein X represents Cl; Y represents O; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

101. (new) A coating of claim 78, which is a liquid and solidifies into a hard coating on a surface.

102. (new) A coating comprising an effective amount of an anti-fouling compound of structure 1:



1

wherein

X represents O, -O(aryl), -O(acyl), -O(sulfonyl), -CN, F, Cl, or Br;

Y represents S, Se, or NR;

Z represents a substituted or unsubstituted alkyl, heteroalkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(\text{CH}_2)_m\text{-R}_{80}$ group;

R represents independently for each occurrence hydrogen, alkyl, heteroalkyl, aryl, heteroaryl, aralkyl, heteroaralkyl, or $-(\text{CH}_2)_m\text{-R}_{80}$;

R_{80} represents independently for each occurrence aryl, cycloalkyl, cycloalkenyl, heterocyclyl, or polycyclyl; and

m is an integer in the range 0 to 8 inclusive or salt thereof,

wherein the coating releases the compound or a biologically active fragment thereof when in contact with a surface that is amenable to biofouling.

103. (new) A coating of claim 102, wherein X represents F, Cl, or Br.

104. (new) A coating of claim 102, wherein X represents Cl.

105. (new) A coating of claim 102, wherein Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

106. (new) A coating of claim 102, wherein Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

107. (new) A coating of claim 102, wherein Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

108. (new) A coating of claim 102, wherein X represents F, Cl, or Br; and Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

109. (new) A coating of claim 102, wherein X represents Cl; and Z represents a substituted or unsubstituted alkyl, aryl, or $-(CH_2)_m-R_{80}$ group.

110. (new) A coating of claim 102, wherein X represents F, Cl, or Br; and Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

111. (new) A coating of claim 102, wherein X represents Cl; and Z represents a substituted or unsubstituted alkylphenyl, heteroalkylphenyl, arylphenyl, or heteroarylphenyl group.

112. (new) A coating of claim 102, wherein X represents F, Cl, or Br; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-

dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

113. **(new)** A coating of claim 102, wherein X represents Cl; and Z represents methyl, octyl, 4-(2-methylpropyl)phenyl, 4-(1,1-dimethylethyl)phenyl, 4-(1,1-dimethylpropyl)phenyl, 4-pentylphenyl, 4-(1-methyl-1-phenylethyl)phenyl, or 4-(1-methylheptyl)phenyl.

114. **(new)** A coating of claim 102, which is a liquid and solidifies into a hard coating on a surface.